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PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. II. MAY, JUNE & JULY, 1842. No. 22.

Stated Meeting, May 6.

Present, thirty-seven members.

Dr. CHAPMAN, Vice-President, in the Chair.

Mr. Nicollet, a member elect, was presented to the presiding officer, and signed the Laws.

Letters were read:—

From the Academy of Sciences of Paris, dated 11th Oct. 1841,—the Museum of Natural History of Paris, dated 16th Nov. 1841,—the Royal Institution of London, dated 29th Nov. 1841, and 22d Jan. 1842,—the Geological Society, dated 20th Jan. 1842,—the Zoological Society, dated 14th Jan. 1842,—the Linnean Society, dated 20th Jan. 1842,—the Society of Arts of London, dated 22d Jan. 1842,—the Boston Natural History Society, dated 6th April, 1842,—the Lyceum of Natural History of New York, dated 12th April, 1842, severally acknowledging the receipt of copies of the Society's Transactions and Proceedings:—

From the Museum of Natural History of Paris, dated 28th Feb. 1842, in relation to the transmission to this Society of the Archives of the Museum:—

From the London Electrical Society, dated 31st Dec. 1841, stating that Part III. of their Proceedings had been forwarded to this Society:—

From Mr. Samuel Bailey, dated Sheffield, 15th Dec. 1841, presenting a copy of his treatise on Berkley's Theory of Vision:—

From Messrs. R. Murchison and Edward Sabine, General

Secretaries of the British Association, dated 12th Feb. 1842, requesting to be informed whether any members of this Society would attend the annual meeting of the Association in June next:—

From Mr. William Vaughan, of London, dated 5th March, 1842, relating to a parcel forwarded on behalf of the Linnean Society:—and

From Dr. D. Humpreys Storer, dated 24th April, 1842, and Mr. Simeon Borden, dated 25th April, 1842, severally acknowledging the honour done them by their election as members of the Society.

The following donations were announced:—

FOR THE LIBRARY.

Proceedings of the Royal Astronomical Society of London. Vol. V. Nos. 19 & 20. 8vo. London, 1842.—*From the Society.*

Twenty-fifth Annual Report of the Superintending Committee of the London Provident Institution. 8vo. London, 1841.—*From Mr. William Vaughan.*

A Review of Berkley's Theory of Vision, designed to show the Unsoundness of that Celebrated Speculation. By Samuel Bailey. 8vo. London, 1842.—*From the Author.*

The American Medical Library and Intelligencer. By Robley Dunglison, M.D. New Series. Vol. I. No 9. For March. 8vo. Philadelphia, 1842.—*From the Editor.*

Manners and Household Expenses of England in the Thirteenth and Fifteenth Centuries. By Beriah Botfield, Esq. 4to. London, 1841.—*From the Author.*

The Manuscript Rarities of the University of Cambridge. By James Orchard Halliwell, Esq. 8vo. London, 1841.—*From the Author.*

The Character of Sir John Falstaff. By James Orchard Halliwell, Esq. 12mo. London, 1841.—*From the Author.*

List of Members of the Royal Society. 30th November, 1841. 4to. London, 1841.—*From the Society.*

The Journal of the Royal Geographical Society of London. Vol. XI. Part 1. 8vo. London, 1841.—*From the Society.*

Proceedings of the London Electrical Society. Session 1841-2. 8vo. London, 1841.—*From the Society.*

Fifty-fifth Annual Report of the Regents of the University of the

State of New York. Made to the Legislature, March 1, 1842. 8vo. Albany, 1842.—*From the Regents.*

Jahrbucher der Literatur. Nos. 93 to 96 inclusive. 8vo. 1841.—*From the Baron von Hammer Purgstall.*

On a New Magnetic Instrument for the Measurement of the Inclination and its Changes. By the Rev. Humphrey Lloyd. 8vo. Dublin, 1842.—*From the Author.*

Ueber den Galvanismus als chemisches Heilmittel gegen örtliche Krankheiten, von Dr. Gustav Crusell. Mit einem Schreiben von M. Markus. 8vo. St. Petersburg, 1841.—*From the Author.*

Mémoires de l'Académie Impériale des Sciences de Saint Pètersbourg. VIme. Série. Première Partie, *Sciences Mathématiques et Physiques.* Vol. II. Parts 5 & 6. 4to. St. Petersburg, 1840. *From the Academy.*

Mémoires de l'Académie, &c. Seconde Partie, *Sciences Naturelles.* Vol. III. Parts 5 & 6, & Vol. IV. Parts 1, 2, 3, 4 & 5. 4to. St. Petersburg, 1840–41.—*From the same.*

Mémoires de l'Académie, &c. *Sciences Politique, Histoire et Philologie.* Vol. IV. Part 6, & Vol. V. Parts 1, 2, 3 & 4. 4to. St. Petersburg, 1840–41.—*From the same.*

Mémoires de l'Académie, &c. Mémoires par Divers Savans, et lus dans ses Assemblées. Vol. IV. Parts 3 & 4. 4to. St. Petersburg, 1841.—*From the same.*

Recueil des Actes de la Séance Publique de l'Académie Impériale des Sciences de Saint Pètersbourg, tenue le 29 Décembre, 1840. 4to. St. Petersburg, 1841.—*From the same.*

Institut Royal de France. Rapport du Secrétaire Perpétuel de l'Académie Royale des Inscriptions et Belles Lettres, etc. Lu le 14 Janvier, 1841. Paris, 1841.—*From the Institute.*

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Uitgegeven door J. Van der Hoeven en W. H. de Vriese. Vol. IX. Part 1. 8vo. Leyden, 1841.—*From the Editors.*

Case, and Opinion of P. S. Du Ponceau and A. Davezac, Counsellors, on the Contested Seat of the Hon. David Levy. 8vo. Alexandria, D. C., 1841.—*From Mr. Du Ponceau.*

FOR THE CABINET.

Specimens of Wood taken from a beam out of the Ruins of Uxmal, Central America. This wood is derived from a tree called *zapodillo*, and is said by the natives to be insusceptible of decay.—*From Mr. James M'Kennan.*

A Specimen of Sponge, and Nineteen Specimens of Shells, from Central America.—*From the same.*

Prof. Bache read a paper, entitled "Observations of the Magnetic Dip in the United States, Fourth Series, by Elias Loomis, Professor of Mathematics and Natural Philosophy in Western Reserve College, Ohio," which was referred to a Committee.

Professor Loomis begins this paper by giving the results of further experiments to test the accuracy of the axle of his dipping needle, namely, a series made by Mayer's method; these proved satisfactory, the individual results presenting some discrepancies, but the mean agreeing very nearly with the dip previously obtained. The mean of observations hitherto made with this needle by the usual method, and by the series in different azimuths and by Mayer's method combined, differed but 0.1′, correction having been made to reduce the observations to the same epoch.

Prof. Loomis then gives the magnetic dip observed by the ordinary method at the following named places, as follows:

Brooklyn, Ohio, April 23, 1841, lat. 41° 30′ N., long. 81° 43′ W., Dip 73° 16′.3.

Tallmadge, Ohio, April 26, lat. 41° 06′ N., long. 81° 27′ W., Dip 72° 55′.2.

Tallmadge, Ohio, Oct. 13, lat. 41° 06′ N., long. 81° 27′ W., Dip 72° 51′.5.

Cleveland, Ohio, August 12, lat. 41° 30′ N., long. 81° 41′ W., Dip 73° 04′.3.

Monroe, Michigan, Aug. 14, lat. 41° 55′ N., long. 82° 28′ W., Dip 73° 19′.0.

Ypsilanti, Michigan, August 16, lat. 42° 14′ N., long 83° 38′ W., Dip 73° 18′.8.

Ann Arbor, Michigan, Aug. 16, lat. 42° 18′ N., long. 83° 45′ W., Dip 73° 16′.5.

Detroit, Michigan, Aug, 17, lat. 42° 19′ N., long. 83° 03′ W., Dip (mean of four series at three stations) 73° 35′.3.

Mackinac, Michigan, Aug. 21, lat. 45° 51′ N., long. 84° 41′ W., Dip (mean of four series at two stations) 76° 38′.9.

Fort Brady, Michigan, Aug. 25 & 27, lat. 46° 30′ N., long. 84° 24′ W., Dip (mean of three series at three stations) 77° 29′.7.

Gros Cap, Canada, Aug. 26, lat. 46° 32′ N., long. 84° 43′ W., Dip 77° 05′.3.

South Manitou, Michigan, Aug. 31, lat. 45° 05′ N., long. 85° 38′ W., Dip 75° 59′.3.

Chicago, Illinois, September 2, lat. 41° 53′ N., long. 87° 44′ W., Dip (mean of two series at two stations) 72° 47′.7.

Galena, Illinois, September 4, lat. 42° 28′ N., long. 90° 13′ W., Dip (mean of two series at two stations) 73° 02′.1.

Galena, Illinois, September 13, lat. 42° 28′ N., long. 90° 13′ W., Dip 73° 03.′0.

Mineral Point, Wisconsin, Sept. 6, lat. 42° 51′ N., long. 89° 58′ W., Dip 73° 23′.2.

Mineral Point, Wisconsin, Sept. 10, lat. 42° 51′ N., long. 89° 58′ W., Dip 73° 23′.0.

Blue Mounds, Wisconsin, Sept. 7, lat. 43° 00′ N., long. 89° 36′ W., Dip 73° 34′.9.

Madison, Wisconsin, Sept. 8, lat. 43° 03′ N., long. 89° 11′ W., Dip (mean of two series at two stations) 74° 06′.5.

Campbell's, Wisconsin, Sept. 9, lat. 43° 01′ N., long. 89° 26′ W., Dip 73° 28′.1.

Hickok's, Wisconsin, Sept. 9, lat. 42° 58′ N., long. 89° 47′ W., Dip 73° 39′.5.

Platteville, Wisconsin, Sept. 11, lat. 42° 43′ N., long. 90° 14′ W., Dip (two series at two stations) 73° 17′.4.

Peru, Illinois, Sept. 16, lat. 41° 23′ N., long. 89° 05′ W., Dip (two series at two stations) 71° 51′.1.

Pekin, Illinois, Sept. 18, lat. 40° 35′ N., long. 89° 36′ W., Dip 71° 13′.2.

Copperas Creek, Illinois, Sept. 18, lat. 40° 30′ N., long. 89° 48′ W., Dip 71° 04′.0.

Alton, Illinois, Sept. 22, lat. 38° 54′ N., long. 90° 04′ W., Dip (two series, at two stations) 69° 34′.8.

Upper Alton, Illinois, Sept. 22, lat. 38° 55′ N., long. 90° 03′ W., Dip (two series, at two stations) 69° 45′.7.

Edwardsville, Illinois, Sept. 23, lat. 38° 50′ N., long. 89° 53′ W., Dip 69° 57′.7.

Bunker Hill, Illinois, Sept. 24, lat. 39° 04′ N., long. 89° 53′ W., Dip 69° 49′.1.

Monticello, Illinois, Sept. 25, lat. 38° 57′ N., long. 90° 05′ W., Dip 69° 38′.9.

St. Louis, Missouri, Sept. 29, lat. 38° 38′ N., long. 90° 04′ W., Dip 69° 25′.5.

Vincennes, Indiana, October 1, lat. 38° 43′ N., long. 87° 29′ W., Dip (two series, at two stations) 69° 52′.8.

Cincinnati, Ohio, Oct. 5, lat. 39° 06′ N., long. 84° 27′ W., Dip 70° 27′.7.

Columbus, Ohio, Oct. 7, lat. 39° 57′ N., long. 83° 03′ W., Dip 71° 03′.7.

Hebron, Ohio, Oct. 8, lat. 39° 59′ N., long. 82° 29′ W., Dip (two stations) 71° 10′.1.

Frazersburgh, Ohio, Oct. 9, lat. 40° 09′ N., long. 82° 08′ W., Dip (two stations) 71° 48′.7.

Dover, Ohio, Oct. 11, lat. 40° 33′ N., long. 81° 30′ W., Dip 72° 19′.2.

Fulton, Ohio, Oct. 12, lat. 40° 55′ N., long. 81° 38′ W., Dip 72° 38′.9.

Clinton, Ohio, Oct. 12, lat. 40° 58′ N., long. 81° 40′ W., Dip 72° 44′.0.

Hudson, Ohio, Oct. 27, lat. 41° 15′ N., long. 81° 27′ W., Dip 72° 48′.7.

Hudson, Ohio, November 13, lat. 41° 15′ N., long. 81° 27′ W., Dip 72° 48′.7.

Prof. Bache also read a note by Prof. Loomis, as a supplement to his paper on the Storm of December 20, 1836, which was referred to a Committee.

These supplementary meteorological observations include the height of the barometer, and are from the journals of Mr. J. N. Nicollet, at Fort Snelling, lat. 44° 53′ N. and long. 93° 12′ W., and of Prof. Joseph Ray, at Cincinnati. They are important, as showing that the coincidence of the period of minimum of the barometer and of the change of wind to the N. W. was not general, and lead to an increased curvature in the lines of barometric minimum in the north-western part of the United States. The conclusion which Professor Loomis draws is, that "the atmospheric wave in latitude 45° travelled with nearly twice the velocity it did in latitude 30°. The entire range of the barometer at Fort Snelling, was .67 inch, about half what it was in longitude 72° in the same parallel. At the same rate, the oscillation would be reduced to about one-third of an inch in the neighbourhood of the Rocky Mountains."

Mr. Walker read a paper, entitled "Astronomical Observations made at various Places in the United States, by J. N. Nicollet," which was referred to a Committee.

This paper contains a list of Observed Transits of Mercury, Solar Eclipses, and Occultations of fixed Stars, chiefly by Mr. Nicollet and Prof. Verot.

No.	Date.	Phase.	Place.	Mean Time.	Observer.
	1824.			*h. m. s.*	
1	June 26	Begin. solar ecl.	Fort Charlotte	6 7 1.00	Ferguson.
2	„ 26	End „		7 13 19.20	„
	1832.				
3	May 4	Em. Merc. I. L.	St. Mary's College	22 28 37.20	Nicollet.
4	„ 4	„ centre	Baltimore	22 29 33.90	„
5	„ 4	„ II. L.	„	22 30 46.60	„
6	July 7	Im. γ Libræ d. l.	„	10 0 4.63	„
7	„ 26	Begin. solar ecl.	„	18 47 35.95	„
8	„ 26	End	„	20 31 48.05	„
9	„ 26	Begin.	„	18 47 48.95	Verot.
10	„ 26	End	„	20 31 35.07	„
11	Nov. 28	Im. γ Capri. d. l.	„	6 12 10.25	Nicollet.
	1834.				
12	Mar. 12	Im. τ Piscium	„	7 26 50.00	Verot.
13	Sept. 14	Im. ψ Capricorni	„	8 13 41.00	„
14	Nov. 9	Im. γ Aquarii	„	5 43 0.00	„
15	„ 30	Begin. solar ecl.	„	0 51 58.80	„
16	„ 30	End „	„	3 31 31.20	„
17	„ 30	Begin. „	Milledgeville, Ga.	0 15 7.00	Nicollet.
18	„ 30	Begin. tot. dark.	„	1 42 36.70	„
19	„ 30	End „	„	1 43 52.00	„
20	„ 30	End solar ecl.	„	3 5 28.10	„
	1835.				
21	May 3	Im. ψ Geminor.	Baltimore	10 27 45.00	Verot.
22	Nov. 7	Em. Merc. cent.	„	0 27 12.00	„
23	„ 7	II. L.	„	0 28 8.00	„
	1836.				
24	May 14	Begin. solar ecl.	„	*18 53 45.00	„
25	„ 14	End „	„	*21 19 32.00	„
	1838.				
26	June 30	Im. α Virginis	Red Pipe Stone Quarry	10 43 7.28	Nicollet.
27	Sept. 18	Begin. solar ecl.	Baltimore	3 7 22.00	Verot.
38	„ 18	Form. ring „	„	4 25 33.00	„
29	„ 18	Rupt. ring „	„	4 30 54.00	„
30	„ 18	End „	„	5 40 41.00	„
31	„ 18	Begin. „	Ti Tanka Taminan Lake	Not observ'd	Nicollet.
32	„ 18	End „		4 18 6.85	„
33	„ 18	Begin. „	Newport, Mo.	1 53 16.77	Goebel.
34	„ 18	End „	„	4 40 42.22	„
	1839.				
35	July 6	Em. η Tauri	Coteau du Missouri	15 49 35.50	Nicollet.
36	Nov. 20	Im. „	St. Louis	6 12 14.70	„
	1841.				
37	June 5	Im. σ Sagittarii	Newport, Mo.	15 40 7.94	Goebel.

* Nos. 24 and 25 are clock time, the rest are mean time of the place of observation.

Nos. 1 & 2, by Mr. James Ferguson, Astronomer to the American Commission for determining the Northern Boundary. Dollond, 2½ feet, power 60. Latitude 47° 58′ 34″; long. 5*h* .59*m* 58*s*.0 West of Greenwich.

Nos. 3—5, by Mr. Nicollet, at St. Mary's College, Baltimore. Lat. 39° 17′ 55″; long. 5*h* 6*m* 30*s*. Dollond, p. 100. Nos. 4 & 5, very correct. Time recorded by the Rev. Mr. A. Verot, Professor of Mathematics and Natural Philosophy, in St. Mary's College.

Nos. 6—11, good observations. No. 7, with power 75; No. 8, power 100; Nos. 9 & 10, power 30. Time noted by Professor Ducatel; No. 11, power 100.

Nos. 17—19, by Mr. Nicollet, at Milledgeville State House—Senate Hall. Lat. 33° 4′ 30″; long. 5*h* 33*m* 20*s*. The telescope was procured by Mr. Nicollet of Dr. Milton Antony. Mr. Nicollet was assisted by Drs. Dugas and Ford, of the Medical College of Augusta.

Nos. 24 & 25, time by chron. Therm. 55°,

7*h*	5*m*	9*s*,	by obs. sun's centre alt.	25°	42′	32.″7.
8	39	39		43	52	35.1.

Correction of index error additive 15″ to sun's alt.

No. 26, by Mr. Nicollet, at the "Red Pipe Stone Quarry," on the "Coteau des Prairies," Sioux Indian Country, Iowa Territory. Latitude 44° 0′ 52″; long. 6*h* 25*m* 17*s*; assisted by Lieut. Charles Tremont, of the U. S. Topographical Engineers.

No. 32, by Mr. Nicollet, power 100, Dollond, clear sky, on the east shore of Ti Tanka Taminan Lake, Lahontan River, Sioux Country, Iowa Territory. Lat. 44° 16′ 41″; long. 6*h* 13*m* 23.*s*0.

Nos. 33 & 34, by Dr. Goebel, at his residence near Newport, Franklin County, Missouri, power 40. Lat. 38° 33′ 58″; long. 6*h* 4*m* 28.*s*6.

No. 35, by Mr. Nicollet, at his encampment on the "Coteau du Missouri," Tanktonan Indian Country. Lat. 44° 51′ 11″; long. 6*h* 36*m* 18*s*.

No. 36, by Mr. Nicollet, at the garden of the Cathedral, St. Louis, Missouri. Lat. 38° 37′ 28″; long. 6*h* 1*m* 0.*s*7.

Prof. Bache read a communication from Lieut. J. M. Gilliss, U. S. N., director of the Magnetic Observatory at Washington, containing a description of the Observatory and of the declination instrument, with the means of the observations for 1840, at the different magnetic hours. This communication was referred to a Committee.

Dr. Hare communicated orally an experiment, showing that foggy air is not a conductor of electricity.

He adverted to the well known influence of moisture in paralyzing the efficacy of electrical apparatus. When the dew point is so high as to deposite moisture on the walls within doors, the most powerful machines were found incompetent to generate electrical excitement.

Dr. J. K. Mitchell having expressed the opinion, founded on some

facts by him noticed, that this deterioration was not the consequence of the direct conducting power of the mixture of air and aqueous vapour, within which the apparatus was situated, but of the adjacent solid surfaces thereby moistened, Dr. Hare determined to ascertain by experiment, whether the view taken by Dr. Mitchell was correct, being the more encouraged to expect an affirmative issue, from the copious evolution of electricity which had been recently ascertained to take place during the condensation of high steam.

Dr. Hare proceeded to describe his experiment. A cup of hot water, to supply vapour, was placed within a large bell glass, having an open neck of above three inches in diameter; so that the centre of the neck might be immediately under the positive conductor of a large electrical machine. A knob, communicating with the negative conductor, was supported in the centre of the bell glass. Next a red-hot rod of iron, terminating in a knob, was suspended by a wire from the positive conductor, so as to descend, concentrically, through the neck, until within striking distance of the knob above mentioned.

It will be perceived that, in consequence of the high temperature of the rod, and the heat radiating from it to the neck of the bell glass, no moisture could condense upon either, so as to impair the power of the former to give sparks, or of the latter to act as a non-conductor.

The apparatus being thus prepared, and the machine in operation, sparks were found to pass through the foggy air occupying the cavity of the bell glass, as if no moisture had been present.

Dr. Hare conceived that the fact that the aqueous vapour does not impair the insulating power of air, must justify some important meteorological inferences. It was well known that pith balls and other light bodies separate when under the effect of electrical excitement, and it had been justly assumed that the circumambient air must be similarly affected. Thus, when, by its condensation, aqueous vapour evolves electricity, as it does not destroy the insulating power of the air, the aërial particles must be surcharged with that fluid. But, since charging with electricity must cause, in those particles, a disposition to remove from each other to a greater distance, the air must occupy a greater bulk, in proportion as it is more highly charged: in other words, it must be rarefied, and rendered specifically lighter. Hence it will rise to a greater elevation than its temperature, unassisted by electrical reaction, would enable it to reach. It follows that a sudden discharge of electricity, such as is productive of lightning, by causing a sudden augmentation of gravity, may induce a descent of the mass

of aëriform matter and moisture thus discharged. Hence might arise the squalls which accompany electrical storms.

Moreover, large masses of moist air, being thus rendered preternaturally light by electrical excitement, may be made to rise to a situation sufficiently cold to cause the congelation of their moisture; and a simultaneous discharge of electricity ensuing, by a species of reaction the aqueous particles may tend to coalesce with an accelerated force, acting oppositely to that by which they had been kept unduly asunder, and thus be aggregated into the lumps of ice called hail.

In many cases, a reciprocal action between thunder clouds had been noticed, and had been explained by supposing them to be differently electrified. This supposition was rendered now reasonable by the fact that, per se, moisture does not destroy the insulating property of air, as demonstrated by the experiment described in the commencement of this communication.

Dr. Hare made a further oral communication, in relation to the fusibility of iridium and rhodium.

He stated his impression that neither iridium nor rhodium, two of the metals accompanying the native grains of platinum, had heretofore been fairly fused. By the colossal battery of Children, a globule of fused iridium is alleged to have been obtained; but both the admitted porosity and specific gravity of that specimen furnished objections to its being considered as pure. Of both the metals in question, by means of his hydro-oxygen blowpipe, within a few months previous, Dr. Hare had succeeded in fusing specimens of unquestionable purity. He had also fused the osmiuret of iridium, as existing in the native spangles, associated with platinum ore. This alloy was found much more difficult of fusion than pure iridium. Both iridium and rhodium became more fusible by continued and repeated fusion. Both appeared to evolve some volatile matter, and did not become completely solid until after being repeatedly fused.

Mr. Walker informed the Society, that Prof. Loomis had succeeded in observing Encke's comet, at its late return, with a five feet Equatorial, by Simmes, belonging to Western Reserve College. Mr. W. further stated, that Professor Loomis had made some interesting observations on a tornado, which had recently passed over a district in the north of Ohio, and that the phenomena tended to confirm the theory of a rotary motion.

Dr. Hays called the attention of the Society to an abstract, recently published, of a paper read by Prof. Owen to the Geological Society of London, relative to Mr. Koch's collection of mammalian remains.

Prof. Owen, it is stated, by a series of comparisons of the lower jaws in that collection, has "arrived at the conclusion, that the *Tetracaulodon* of Godman is the immature state of both sexes of the *Mastodon giganteum*, and that it loses these distinctions in the mature state of both sexes, by the loss of one tusk in the male, and by the loss of both in the female."

Prof. O. conceives, that these views are supported by analogies, and he refers to the Dugong and Narwhal as examples. In the former, in both sexes, the lower jaw is provided, at its deflected extremity, with six incisors, which disappear in the mature animals, one or two abortive remnants at most being occasionally discovered hidden in the irregular cancellous sockets. In the male Dugong the upper incisors are protruded, scalpriform, and of unlimited growth; while in the female they are concealed, cuspidate, and solid at their base, which is expanded.

In the Narwhal, the young of both sexes have a single incisor equally developed on each side of the upper jaw; one of which grows rapidly in the male, constituting the well-known spirally twisted tusk, while the other remains stationary; and both continue rudimental in the female.

Dr. Hays awarded to Prof. Owen's theory the merit of being very ingenious, of embracing all the facts presented by the collection of Mr. Koch, and of explaining several difficulties which had hitherto existed; still he conceived that it was founded on too limited observations to challenge our implicit credence. A complete series of jaws of both sexes and of all ages, which is necessary to settle this question, has never yet been brought to light, and Dr. H. could not, therefore, refer the Society to any specimens which refuted the above theory; but still he would invite the attention of the Society to some, which, at least, created strong doubts of its entire correctness.

Dr. H. then exhibited two casts, one representing the chin and right side of a lower jaw, belonging to the museum of the University of Virginia, figured in Vol. IV. N. S. pl. XXVII, of the Society's Transactions; the other, the left side of a lower jaw, in the Wistar Museum, and figured in Trans. Vol. IV. N. S. pl. XXI. Both of these had appertained to animals of the same age and adolescent (having two molars only left, the ultimate and penultimate ones); yet

the first had had two tusks of the largest size, whilst the second had none, or any trace of alveolus. Two lower jaws in the cabinet of the Society, of nearly the same age, (described and figured in the Trans. Vol. IV. Plates XXIV. and XXV.) were also destitute of tusks, or alveoli for them.

Dr. H. examined the analogies adduced by Prof. Owen in support of his theory, and expressed the opinion that they were very remote; and as the extensive knowledge of that distinguished naturalist had not furnished him with closer ones of the desired character, it was clearly presumable that none could be adduced.

A much closer analogy, Dr. H. observed, was to be found in the Dinotherium, a very nearly allied animal; but so far as its remains, hitherto obtained, enabled us to decipher its history, it was furnished with two tusks in the lower jaw.

On the whole, Dr. H. saw little reason to change the opinion first expressed by him (see Trans. Vol. IV. p. 318.) that "it is impossible in the existing state of our knowledge, and with our present materials, either to confirm or positively refute the suggestion," that the tusks in the lower jaw are a mere sexual character. The honour of establishing this point is yet to be reaped. Should the suggestion, however, prove correct, Dr. H. believed it would be found that the male had two tusks in the lower jaw, instead of one, as supposed by Prof. Owen; and that the jaw in Mr. Koch's collection, containing a single tusk, is to be considered an anomaly.

Stated Meeting, May 20.

Present, twenty-three members.

Dr. PATTERSON, Vice-President, in the Chair.

Letters were read:—

From M. Alexis de Tocqueville, dated Paris, 7th April, 1842, acknowledging the honour done him by his election as a member of this Society:—also from Dr. Locke, of Cincinnati, dated 12th May, 1842, accompanying a donation, presented through Mr. Dobson.

The following donations were announced:—